PB-215 411

WATER QUALITY SURVEY OF THE EASTERN SHORE CHESAPEAKE BAY-WICOMICO RIVER, POCOMOKE RIVER, NANTICOKE RIVER, MARSHALL CREEK, BUNTING BRANCH AND CHINCOTEAGUE BAY

Federal Water Pollution Control Administration
Annapolis, Maryland

1967

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WATER QUALITY SURVEY
OF THE
EASTERN SHORE CHESAPEAKE BAY
WICOMICO RIVER, POCOMOKE
RIVER, NANTICOKE RIVER,
MARSHALL CREEK, BUNTING
BRANCH AND CHINCOTEAGUE BAY

SUMMER 1967

DATA REPORT

NATIONAL TECHNICAL
INFORMATION SERVICE

Chesapeake Technical Support Laboratory
Middle Atlantic Region
FWPCA
Department of the Interior

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I

Details of illustrations in this document may be better studied on microfiche.

I. INTRODUCTION

A. Purpose and Scope

During the summer of 1967, the Chesapeake Support Laboratory, Middle Atlantic Region, Federal Water Pollution Control Administration conducted investigations to obtain background water quality information in the major river basins, and three smaller areas, of the eastern shore of Chesapeake Bay (Delaware, Maryland and Virginia). The results of these investigations are presented in this report.

B. General Remarks

Intensive water quality surveys were conducted on the Wicomico River during the weeks of August 7-11 and August 21-25. An intensive water quality survey was conducted on the Pocomoke River during the period July 24 to August 1. A bathymetric survey was subsequently conducted to obtain measurements of channel volumes and cross-sectional areas, the data from which are to be published separately. Reconnaissance surveys were conducted on the Nanticoke River and on the Wicomico and Pocomoke Rivers prior to the intensive surveys. Pollution control surveys were conducted on Bunting Branch and Marshall Creek. A special bacteriological survey was conducted of Chincoteague Bay shellfish holding waters.

The purpose and conduct of the individual surveys varied considerably; consequently the parameters measured differed among surveys. It is necessary to look in data tables to determine what parameters were measured at which locations. All parameters measured during the 1967 Eastern Shore Surveys and methods used are lised in part D.

C. Sampling Procedures

Surface samples for chemical analysis were obtained by dipping a plastic bucket or large funnel into the river water with a minimum of agitation Samples were retained in plastic one-gallon "cubitainers." Dissolved oxygen (DO) samples were obtained by siphoning from the bucket or by attaching a tube to the funnel outlet and extending it to the bottom of a conventional 300 ml DO bottle. The bottle was overfilled twice without excessive agitation, and the DO fixed immediately. Temperature was measured in the dipped bucket immediately after sampling.

Mid-depth samples were taken using a plastic Van Dorn sampler. Sampling procedures were otherwise identical to those used for surface samples All samples were stored on ice. Analysis was started immediately on return to the laboratory. generally within two hours of sampling.

D. Measured Parameters and Analytical Methods

1. Water temperature was determined using a mercury thermometer inserted into the sample container immediately upon collection.

2. Light extinction, in inches, was made with a 12" (30 cm) white Secchi disk.

3. Salinity was determined with a calibrated saliniometer.

4. Dissolved Oxygen

Reference: Standard Methods for the Examination of Water and Wastewater, 12 ed., 1965.

Dissolved Oxygen was determined by the azide modification of the basic Winkler method with the titration done potentiometrically with an automatic "titralyzer."

5. Biochemical Oxygen Demand

Reference: Standard Methods for the Examination of Water and Wastewater, 12 ed. 1965.

The Biochemical Oxygen Demand was determined by the azide modification of the basic Winkler method with the titration done potentiometrically with an automatic "titralyzer." The samples as received were diluted if necessary and transferred to standard 300 ml BOD bottles in triplicate. One initial DO and two final DO determinations were used throughout. Incubation was started immediately at 20°C and continued for five days after which they were titrated.

6. Total Phosphorus

Reference: Menzel, D.W. and Corwin, N. 1965. The Measurement of Total Phosphorus in Seawater Based on the Liberation of Organically Bound Fractions by Persulfate Oxidation. Limnology and Oceanography, 10: 280-282.

Murphy, J. and Riley, J.P.1962. A Modified Single Solution Method for the Determination of Phosphate in Natural Waters. Analytica Chimica Acta, 27: 31-36.

Total Phosphate was determined after persulfate oxidation of the sample in an autoclave at 15 psi for 30 minutes. The resultant ortho-phosphate was then determined colorimetrically as the molybdenum-blue complex with the optical density measured at 882 mμ.

7. Total Kjeldahl Nitrogen

Reference: Standard Methods for the Examination of Water and Wastewater, 12 ed., 1965.

Total Kjeldahl Nitrogen includes ammonia and organic nitrogen and was determined by the standard micro-kjeldahl procedure. The sample was digested in the presence of strong acid to convert the organic nitrogen to ammonia. The ammonia was then distilled, collected in boric acid solution, nesslerized and determined colorimetrically.

8. Nitrate + Nitrite

Reference: A Manual of Sea Water Analysis, J.D.H. Strickland and T.R. Parsons, 2nd. ed., Queen's Printer and Controller of Stationery, Ottawa, Canada, 1965.

Nitrate plus Nitrite nitrogen was determined by the cadmium reduction of nitrate to nitrite and subsequent diazotization with sulphanilamide and N-(1-napthyl)-ethylenediamine dihydrochloride. The results were calculated as nitrite nitrogen.

9. Sulfate

Reference: Fisher Scientific Company, Technical Data, TD-178.

The Sulfate content of the sample was determined by the Barium Chloranilate method. The sample was first passed through an ion exchange column to remove interfering cations. The effluent was then allowed to react with the reagent, filtered, and the color intensity determined on a spectrophotometer.

10. Chlorides

Reference: Fisher Scientific Company, Bulletin #64-4A.

The Chloride concentration was determined by titrating the sample with standard silver nitrate to a potentiometric end point using a silver indicating electrode and a silver/silver chloride reference electrode.

11. Chlorophyll

Reference: A Manual of Sea Water Analysis, J.D.H. Strickland and T.R. Parsons, 2nd. ed., Queen's Printer and Controller of Stationery, Ottawa, Canada, 1965.

Chlorophyll a was determined by extraction of millipore-filtered samples in 90% acetone and read spectrophotometrically.

12. Total Acidity - Cold

Reference: Standard Methods for the Examination of Water and Wastewater, 12 ed.. 1965.

The Cold Acidity was determined by titrating a known volume of sample as received with standard sodium hydroxide. When a value for mineral acidity was desired, a titration reading at pH 4.5 was taken. The Total Acidity was titrated to pH 8.3.

13. Total Alkalinity

Reference: Standard Methods for the Examination of Water and Wastewater, 12 ed., 1965.

The Total Alkalinity was determined by titrating 100 ml, or suitable aliquot, to pH 4.5 with standardized 0.02 N sulfuric acid. A Leeds and Northrup laboratory pH meter was used to indicate pH changes.

14. Total Residue

Reference: Standard Methods for the Examination of Water and Wastewater, 12 ed., 1965.

The Total Residue was determined by evaporating to dryness a known volume of the sample as received. The evaporation was done by using a tared evaporating dish as a carrier. The drying oven was maintained at 105°C. When the evaporation of the sample was complete, the dishes

were cooled and weighed. The gain in weight represents Total Residue.

15. Nonfiltrable Residue

Reference: Standard Methods for the Examination of Water and Wastewater, 12 ed., 1965.

The Nonfiltrable Residue was determined by filtering a known volume of sample. A predried and weighed Gelman Type A glass fiber filter was used. The filter and its contents were then dried in an oven at 105°C, cooled and reweighed. The gain in weight represents Nonfiltrable Residue.

16. Volatile Residue

Reference: Standard Methods for the Examination of Water and Wastewater, 12 ed., 1965.

The Volatile Residue was determined by placing the filter with its residue retained after completion of the test for nonfiltrable residue in a furnace held at 600°C for 1 hour. The filter papers were then cooled and reweighed. The sample was then calculated as Volatile Residue represented by the loss in weight from the final weight of the nonfiltrable residue test.

17. Coliform

Reference: Standard Methods for the Examination of Water and Wastewater, 12 ed., 1965.

Coliform population was determined using the 5 tube-3 dilution Multiple-Tube Fermentation Technique. Lauryl sulfate tryptose broth was used for the presumptive test with

incubation at 35° ± 0.5°C. Brilliant green lactose bile broth was used for the confirmatory test with incubation at 35° ± 0.5°C. The results were reported as the Most Probable Number (MPN).

B. Fecal Coliform

Reference: Standard Methods for the Examination of Water and Wastewater, 12 ed., 1965.

Water Pollution Control Research Series, WP-20-3.

Fecal Coliform population was determined using the 5 tube-3 dilution Multiple-Tube Fermentation Technique. Lauryl sulfate tryptose broth was used for the presumptive test with incubation at 35° ± 0.5°C. EC medium was used for the confirmatory test with air incubation at 45.5° ± 0.5°C. The results were reported as the Most Probable Number (MPN).

II. STATION LOCATIONS

1	Wicomico River	Nancy Point
2	Wicomico River	Harbor Point
3	Wicomico River	Gumby Landing
4	Wicomico River	Patricks Landing
5	Wicomico River	Quantico Wharf
6	Wicomico River	Collins Wharf
7	Wicomico River	White Haven
8	Wicomico River	Webster Cove
9	Wicomico River	Island Point
10	Wicomico Creek	Wicomico Creek Ferry
11	Sharps Creek	River Road Bridge
12	Tonytank Creek	Tonytank, Md. Bridge
13	Beaverdam Creek	Shumaker Road Bridge
14	Leonard Pond Run	Naylor Mill Road, North of Salisbury, Md.
1	Pocomoke River	Porters Crossing
2	Pocomoke River	Snow Hill
3	Pocomoke River	Milburn Landing
4	Pocomoke River	Pocomoke City
5	Pocomoke River	Puncheon Landing
6	Pocomoke River	Rehobeth
7	Pocomoke River	Cedar Hall Wharf

8	Pocomoke River	Shelltown, Maryland
9	Pocomoke River	East of Fair Island
10	Pocomoke River	Opposite Persimmon Point
11	Pocomoke River	Fair Island Channel
12	Pocomoke River	Robin Hood Bay
13	Pocomoke River	Rumbly Point
14	Pocomoke River	Marumsco Creek
15	Pocomoke River	Bullbegger Creek
16	Pocomoke River	Pitts Creek
17	Pocomoke River	Holdens Creek
1	Nanticoke River	U.S. 13 Bridge, upstream of Seaford, Delaware
2	Nanticoke River	Woodland Ferry, Delaware
3	Nanticoke River	Sharptown, Maryland
4	Nanticoke River	Vienna, Maryland
5	Nanticoke River	Broad Creek - Bethel, Delaware
6	Nanticoke River	Marshy Hope Creek Brookview, Maryland
1	Marshall Creek	
1 E	Marshall Creek	
2	Marshall Creek	
2 A	Marshall Creek	
2 B	Marshall Creek	
3	Marshall Creek	

4	Marshall Creek	
1	Bunting Branch	
3	Bunting Branch	
4	Bunting Branch	
5	Bunting Branch	
6	Bunting Branch	
1	Chincoteague Bay	Outside Tide Gate # 1
2	Chincoteague Bay	Inside Tide Gate
3	Chincoteague Bay	First Raft
4	Chincoteague Bay	Second Raft
5	Chincoteague Bay	Third Raft

III. SURVEY RESULTS

1967

CHESAPEAKE TECHNICAL SUPPORT LABORATORY
WICOMICO RIVER SURVEY

Station 1: Nancy Point

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Secchi Disk Inches	Salinity Parts per thousand	Coliform MPN	Fecal Coliform MPN	NO_2+NO_3 mg/l NO_3-N	TKN mg/l N	Total P mg/l PO_4	Chloro-phyll a µg/l	Chlorides mg/l	DO mg/l Sur-face	DO mg/l Mid-depth	BOD mg/l Sur-face	BOD mg/l Mid-depth	Susp. Solids mg/l	Volatile Solids mg/l
67071201	7-12	1535	26.7	15	0	2,300	490	.442	1.59	.655		42.7	8.25		7.94		33.6	16.4
67080708	8-7	1135	25.1	15		54,200	16,090	.265	.875	.342	22.50		5.60		3.80		14.0	6.8
22	8-7	1655	26.2	17		24,000	20	.289	.733	.264	7.50		5.72		2.96		46.4	30.8
0801	8-8	1112	25			10,900	230	.305	.729	.246	15.00		5.14		5.86		12.8	ND
20	8-8	1808	24.8	21		2,400	130		1.002	.267	8.33		5.22		5.12		36.8	12.4
0901	8-9	1155	24.8	26		9,180	490	.300	.910	.289			4.96		3.54		4.8	6.8
15	8-9	1844	26.2	20		10,900	1,410		.574	.575	34.17		5.40		6.42		21.6	10.0
1001	8-10	1257	25.7	24		10,900	1,090	.256	1.332	.522			4.85		5.62		14.0	10.0
15	8-10	1914	25.4	25		4,600	170		.950	.503	32.50		5.42		6.14		5.2	ND
1101	8-11	0755	25.0	18	0	3,480	330		1.064	.326	24.75		4.42		6.14		18.0	12.8
15	8-11	1325	24.6	13	0	9,180	56		.990	.380			4.06		4.40			
67082101	8-21	1225	26			24,000	790	.780	1.801	.817	67.50	15.4	6.20	3.67	7.76	4.20	4.8	8.4
17	8-21	1650	26.3			2,400	170	.110	1.889		92.50		5.76	3.27	5.90	3.24	6.8	12.8
2201	8-22	1052	24.5			2,400	20	.665	1.306	.589	40.83	12.1	3.75	3.55	4.44	3.74	31.6	26.4
13	8-22	1740	25.5			2,780	170		1.456	.689	47.50	10.1	4.10	3.61	3.56	2.58	16.0	14.0
2301	8-23	1205	23.4			16,090	230		1.814	.514		9.2	5.17	5.03	2.76	2.70	2.0	2.0
13	8-23	1734	22			34,800	16,090		1.450	.419		8.8	4.87	5.36	2.62	2.06	17.6	12.8
2401	8-24	1205	22			17,200	430		.874	.242		6.0	6.81	6.40	4.24	3.48	14.4	10.8
13	8-24	1855	22			17,200	16,090		2.138	.366		6.6	6.20	6.28	4.20	3.10	14.8	16.4
2501	8-25	0855	21.5			>160,900	2,400		607	.159		5540.0	5.90	6.04	9.62	3.02	27.6	16.8

ND Not detectable

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WICOMICO RIVER SURVEY

Station 2: Harbor Point

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Secchi Disk Inches	Salinity Parts per thousand	Coliform MPN	Fecal Coliform MPN	NO_2+NO_3 mg/l NO_3-N	TKN mg/l N	Total P mg/l PO_4	Chlorophyll a µg/l	Chlorides mg/l	DO mg/l Surface	DO mg/l Mid-depth	BOD mg/l Surface	BOD mg/l Mid-depth	Susp. Solids mg/l	Volatile Solids mg/l
67071202	7-12	1525	27.4	15	.12	3,300	140	.416	1.82	.875		61.7	11.47		9.70		35.6	17.2
67080709	8-07	1126	25.2	20		24,000	16,090											
23		1647	26	15		22,100	20						5.80					
0802	8-08	1105	25.6	15		16,090	790						8.12		4.50		42.0	24.0
21		1800	25	19		2,400	230						4.97		3.76		23.2	2.4
0902	8-09	1132	25	20		22,100	330						5.42		6.28		31.2	16.8
16		1837	26.7	18		54,200	1,090						3.36		4.50		21.2	11.2
1002	8-10	1252	25.4	22		17,200	2,100						6.56		5.62		24.8	16.0
16		1904	25.7	21		3,480	40						4.44		4.24		12.4	5.6
1102	8-11	0750	25	17	0	2,780	130						4.63		5.76		14.0	12.8
16		1320	24.5	14	0	2,400	790						3.32		5.52		22.0	12.8
												8.3	3.82		5.28			
67082110	8-21	1215	25.7			7,000	330											
18		1640	25.8			3,450	50					10.7/13.2	4.77	2.03	5.40	7.76	10.4	9.6
2202	8-22	1047	24			9,180	70					18.0	4.50	1.62	5.46	3.96	23.6	19.6
14		1730	25.7			16,090	50					13.6	1.80	1.80	4.20	4.72	33.6	27.2
2302	8-23	1200	23.5			10,900	330					14.1	2.16	1.65	5.40	5.40	20.0	13.6
14		1728	23			54,200	9,180						4.31	4.07	4.72	4.58	46.4	34.8
2402	8-24	1200	22.5			14,100	81					12.0	2.57	2.33	4.78	3.44	22.4	14.8
14		1840	23			5,420	1,300					7.4	4.65	4.63	4.58	5.24	12.8	2.0
2502	8-25	0850	22			160,900	94					8.2	3.37	3.35	3.42	4.24	14.0	10.0
												17.4	5.42	5.54	3.38	7.96	15.6	15.2

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CHESAPEAKE TECHNICAL SUPPORT LABORATORY
WICOMICO RIVER SURVEY

Station 3: Gumby Landing

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Secchi Disk Inches	Salinity Parts per thousand	Coliform MPN	Fecal Coliform MPN	NO_2+NO_3 mg/l NO_3-N	TKN mg/l N	Total P mg/l PO_4	Chloro-phyll a µg/l	Chlorides mg/l	DO mg/l Sur-face	DO mg/l Mid-depth	BOD mg/l Sur-face	BOD mg/l Mid-depth	Susp. Solids mg/l	Volatile Solids mg/l
67071203	7-12	1515	26.7	14	.1	17,200	130	.460	1.63	.764		109.5	8.68		9.08		47.2	18.8
67080710	8-07	1121	25	16		34,800	3,480											
24		1640	27.2	14		14,100	< 20						7.19					
0803	8-08	1100	25	18		22,100	50						7.50		7.02		46.0	22.0
22		1755	25.7	18		2,100	80					8.4	4.58		4.44		27.6	5.6
0903	8-09	1125	24.9	18		16,090	70						6.58		7.06		34.8	24.8
17		1832	26.7	16		22,100	170						3.48		4.88		30.8	12.4
1003	8-10	1246	25.5	18		34,800	170						7.89		7.40		28.8	30.0
17		1859	25.7	19		4,000	20						4.85		6.06		20.0	9.6
1103	8-11	0742	25.2	12	0	7,000	80						4.21		5.92		18.8	11.2
17		1315	24.8	12	0	2,210	140						3.68		5.82		26.4	11.2
													6.45		6.12			
67082103	8-21	1205	25.6			10,900	330											
19		1630	26.1			2,210	50						2.61	1.61	9.90	3.60	7.6	4.4
2203	8-22	1042	24.5			10,900	20						3.82	2.90	5.32	4.20	14.8	12.0
15		1725	25.7			1,300	20						1.60	1.29	4.86	5.94	38.8	23.6
2303	8-23	1155	24			160,900	700						3.42	2.93	4.56	5.12	21.2	13.2
15		1721	23			24,000	5,420						2.11	1.77	4.76	5.18	13.6	10.4
2403	8-24	1155	23			54,200	56						2.53	2.57	4.00	4.40	16.8	4.8
15		1815	23.5			10,900	330						3.31	2.52	5.76	6.12	14.4	1.6
2503	8-25	0845	22			3,480	490						2.82	2.59	3.66	5.04	15.2	5.6
													2.85	2.82	2.36	2.58	21.6	17.6

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WICOMICO RIVER SURVEY

Station 4: Patricks Landing

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Secchi Disk Inches	Salinity Parts per thousand	Coliform MPN	Fecal Coliform MPN	NO_2+NO_3 mg/l NO_3-N	TKN mg/l N	Total P mg/l PO_4	Chlorophyll a µg/l	Chlorides mg/l	DO mg/l Surface	DO mg/l Mid-depth	BOD mg/l Surface	BOD mg/l Mid-depth	Susp. Solids mg/l	Volatile Solids mg/l
67071204	7-12	1500	27.1	12	.4	2,300	50	ND	1.63	.448		259.4	11.34		6.62		45.2	12.4
67080711	8-07	1110	25.8	14		54,200	3,480											
25		1628	26.8	12		34,800	20						6.96					
0804	8-08	1056	25.4	16		7,900	330						9.30		7.96		88.4	63.6
23		1744	26.4	15		2,400	170					14.5	5.84		5.78		32.8	9.6
0904	8-09	1115	25.7	16		5,420	20					42.5	6.98		7.86		26.4	19.6
18		1824	26.6	13		9,400	2,400					16.0	5.12		6.70		31.2	14.8
1004	8-10	1237	25.9	17		54,200	230					43.7	6.90		7.52		39.6	20.0
18		1850	26	16		3,480	80					23.9	4.46		5.46		32.0	16.8
1104	8-11	0730	25.6	11	0	5,420	1,300					32.3	4.74		6.24		29.6	10.8
18		1305	25	11	0	1,720	230						3.23		6.40		35.6	16.0
												16.5	3.12		5.64			
67082104	8-21	1155	25.9			9,180	230											
20		1620	26.4			5,420	230						5.35	2.71	8.96	6.64	34.0	15.2
2204	8-22	1035	24.8			10,900	< 20						4.58	4.12	4.12	5.54	36.4	13.6
16		1715	25.8			7,000	110						3.01	2.41	4.06	4.04	16.8	7.2
2304	8-23	1145	23.5			10,900	440						3.97	3.56	5.18	4.48	26.8	11.2
16		1712	23			16,090	9,180						2.63	3.05	4.24	4.42	39.2	14.0
2404	8-24	1145	23			460	< 20						3.32	3.17	3.42	4.34	29.2	10.8
16		1810	23.5			16,090	790						2.47	2.76	4.14	4.38	16.4	
2504	8-25	0835	22.5			9,180	270						3.32	2.99	2.58	2.94	14.0	6.0
													3.03	2.95	2.12	1.84	23.2	12.8

1967
CHESAPEAKE TECHNICAL SUPPORT LABORATORY
WICOMICO RIVER SURVEY

Station 5: Quantico Wharf

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Secchi Disk Inches	Salinity Parts per thousand	Coliform MPN	Fecal Coliform MPN	NO_2+NO_3 mg/l NO_3-N	TKN mg/l N	Total P mg/l PO_4	Chloro-phyll a µg/l	Chlorides mg/l	DO mg/l Sur-face	DO mg/l Mid-depth	BOD mg/l Sur-face	BOD mg/l Mid-depth	Susp. Solids mg/l	Volatile Solids mg/l
67071205	7-12	1435	27.3	18	1.4	10,900	1,300	.237	1.22	.362		635.0	5.00		8.60		29.2	13.2
67080712	8-7	1055	26.3	13		34,800	1,090	.294	1.423	.624	148.33		7.64		7.42		32.4	10.0
26	8-7	1615	27.1	13		7,000	<20	.320	1.195	.510	116.66		5.71		5.62		68.8	39.6
0805	8-8	1036	26.3	13		4,900	5,420	.355	1.539	.599	106.66		6.23		7.50		60.8	20.4
24	8-8	1732	26.4	15		2,210	330		1.002	.460	82.50	250.0	4.97		7.02		57.6	13.2
0905	8-9	1100	26	13		22,100	220	.344	1.188	.624		51.4	5.47		7.80		47.2	16.4
19	8-9	1811	26.7	16		54,200	1,720		.580	.506	76.66	362.0	5.42		4.98		40.0	19.2
1005	8-10	1225	26.2	17		16,900	4,600	.256	1.061	.523		60.4	4.79		6.18		43.6	21.6
19	8-10	1839	26.3	17		17,200	130		.975	.557	61.66	234.0	4.29		5.94		32.8	12.4
1105	8-11	0715	25.8	11	0	54,200	3,480		1.182	.529	94.50		2.97		7.78		32.8	13.2
19	8-11	1255	25.6	10	0	7,000	1,300			.616		38.4	3.47		6.50			
67082105	8-21	1140	26.2			16,090	490	.740	1.437	.674	80.00	68.0	6.53	3.91	5.84		24.8	10.8
21	8-21	1605	26.3		.3	2,400	130	.950	.898	.486		474.0	5.50	6.19	4.74	4.70	45.6	19.2
2205	8-22	1023	25			34,800	80	.578	1.230	.432	82.50	89.2	3.84	3.37	4.32	4.76	41.2	12.8
17	8-22	1705	25.9		.4	3,480	<20	.604	1.011	.446	70.83	498.0	4.97	5.13	4.60	4.22	29.6	14.4
2305	8-23	1127	23.8			54,200	1,300		1.161	.669		30.0	3.96	3.78	5.04	4.14	38.4	9.6
17	8-23	1655	24			91,800	10,900		.960	.572		134.0	3.97	3.97	4.44	5.36	45.6	9.6
2405	8-24	1130	23.5			17,200	82		1.425	.744		22.0	3.00	3.09	4.02	3.54	42.0	6.0
17	8-24	1800	23			91,800	4,600			.660		60.0	3.68	3.31	3.30	2.68	38.8	18.0
2505	8-25	0825	23			5,420	1,720		1.159	.619			3.43	2.89	2.14	2.68	34.4	20.0

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CHESAPEAKE TECHNICAL SUPPORT LABORATORY
WICOMICO RIVER SURVEY

Station 6: Collins Wharf

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Secchi Disk Inches	Salinity Parts per thousand	Coliform MPN	Fecal Coliform MPN	NO_2+NO_3 mg/l NO_3-N	TKN mg/l N	Total P mg/l PO_4	Chloro-phyll a µg/l	Chlorides mg/l	DO mg/l Sur-face	DO mg/l Mid-depth	BOD mg/l Sur-face	BOD mg/l Mid-depth	Susp. Solids mg/l	Volatile Solids mg/l
67071206	7-12	1420	27.2	27	5.1	4,600	220		.94	.280		2360	7.7		2.10		24.8	11.2
67080713	8-07	1042	26.4	14	0	91,800	1,720											
27		1602	27.4	18	3.9	7,000	< 20						4.50					
0806	8-08	1022	26.5	15	.5	7,900	1,300						5.34		3.04		117.6	76.0
25		1715	26.9	18	3.9	1,720	170					594	4.00		5.06		65.6	9.2
0906	8-09	1050	26.3	17	.5	160,900	400					2420	5.77		4.42		50.8	13.2
20		1800	27.4	20	4.5	2,400	330					650	3.83		4.44		51.2	28.0
1006	8-10	1213	26.5	18	.9	54,200	310					2540	6.37		4.28		38.0	20.8
20		1828	26.9	22	3.5	7,000	20					780	3.98		3.70		53.2	16.4
1106	8-11	0705	26	18	2.9	5,420	1,090					2070	5.34		5.66		29.2	6.4
20		1245	25.9	11	0	9,180	2,400					1850	3.92		4.56		22.0	10.4
67082106	8-21	1120	25.9		.8	3,480	< 20					346	3.36		4.90			
22		1555	26.4		4.0	790	20						6.92	4.72	4.64	4.26	35.2	18.4
2206	8-22	1010	25.9		1.3	5,420	170						6.52	4.58	4.70	4.12	42.8	20.8
18		1640	26		4.4	1,410	80						4.62	4.49	3.50	3.26	37.6	14.4
2306	8-23	1115	25.9		.1	24,000	2,210						6.17	5.20	2.82	2.80	27.6	16.8
18		1643	26.4		1.1	24,000	9,180						4.39	4.09	3.64	3.82	48.0	10.4
2406	8-24	1117	23.5			4,700	70						4.97	4.99	4.22	4.20	25.6	9.6
18		1745	23			16,090	700						3.92	3.64	2.86	2.62	52.0	14.4
2506	8-25	0810	23			3,480	330						4.95	4.78	2.92	2.98	26.4	11.6
													4.19	3.99	2.12	2.50	32.0	16.8

1967
CHESAPEAKE TECHNICAL SUPPORT LABORATORY
WICOMICO RIVER SURVEY

Station 7: Whitehaven

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Secchi Disk Inches	Salinity Parts per thousand	Coliform MPN	Fecal Coliform MPN	NO_2+NO_3 mg/l NO_3-N	TKN mg/l N	Total P mg/l PO_4	Chloro-phyll a µg/l	Chlorides mg/l	DO mg/l Surface	BOD mg/l Surface	Susp. Solids mg/l	Volatile Solids mg/l
67071207	7-12	1305	27.3	32	8.6	490	< 20		.49	.100		4420	5.57	3.46	22	8.8
67080714	8-07	1015	26.8	18	3.1	34,800	1,720						5.20			
28		1540	27.7	22	6.4	2,400	20						7.15	4.78	39.2	16.4
0807	8-08	0957	26.7	21	4.1	1,700	230					2480	4.74	1.78	77.2	33.6
26		1553	27.7	27	6.9	1,300	20						6.80	4.92	9.2	13.6
0907	8-09	1025	26.9	20	4.2	2,100	20						4.96	4.18	43.2	28
21		1727	27.9	36	8	220	80						8.05	2.98	32.4	20
1007	8-10	1150	26.9	21	4.6	2,400	80						4.96	3.72	64.8	12.4
21		1751	27.2	30	6.3	330	< 20						7.10	6.42	25.2	9.6
1107	8-11	0640	26	25	6.4	320	40						5.39	3.40	9.6	6.4
21		1210	26.1	16	3.1	3,480	170						4.61	4.72		
67082107	8-21	1050	26.2		3.7	480	130						6.29	4.32	18.8	12
23		1530	26.6		6.9	170	20						6.77	5.10	24.4	6.4
2207	8-22	0943	26.1		4.7	790	50						5.11	2.88	46	51.6
19		1600	26		6.9	1,410	< 20						6.38	3.74	31.2	15.6
2307	8-23	1055	26.3		2.8	8,400	3,480						5.02	1.78	27.6	6.4
19		1616	26.5		4.1	9,180	790						5.96	3.80	15.6	6.8
2407	8-24	1050	26.2		1.4	2,400	790						4.98	1.62	34	14
19		1712	25.8		.6								6.32	1.94	26.4	13.2
2507	8-25	0755	25.1		2.9	3,200	360						5.66	1.42	32	18

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CHESAPEAKE TECHNICAL SUPPORT LABORATORY
WICOMICO RIVER SURVEY

Station 8: Webster Cove

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Secchi Disk Inches	Salinity Parts per thousand	Coliform MPN	Fecal Coliform MPN	NO_2+NO_3 mg/l NO_3-N	TKN mg/l N	Total P mg/l PO_4	Chloro-phyll a µg/l	Chlorides mg/l	DO mg/l Surface	BOD mg/l Surface	Susp. Solids mg/l	Volatile Solids mg/l
67071208	7-12	1245	27.5	30	11.5	50	80		.47	.074		5850	6.07	3.68	29.6	12
67080715	8-07	1005	26.5	30	7	1,720	130									
29		1528	27.7	42	9.6	1,700	< 20						5.59			
0808	8-08	0945	26.9	32	7.9	490	330						9.07	3.54	38.8	18.4
27		1542	27.7	46	9.6	460	20					4740	6.32	2.12	84.8	41.6
0908	8-09	1010	26.7	36	7.8	700	< 20						8.55	5.36	8	17.2
22		1717	27.8	32	9.5	50	< 20						6.59	3.90	33.2	31.6
1008	8-10	1140	26.9	37	8.1	790	20						7.66	4.18	32.8	18
22		1738	27.1	39	8.9	170	< 20						6.14	3.46	22.8	1.2
1108	8-11	0627	25.7	26	8.8	1,300	230						7.59	7.22	35.2	9.6
22		1200	26.4	23	6.6	140	< 20						5.95	3.74	47.2	LA
67082108	8-21	1040	26.3		6.7	270	< 20						5.50	3.58		
24		1520	26.4		9.2	130	< 20						6.04	3.46	23.6	6
2208	8-22	0935	26		7.9	230	20						2.23	4.94	47.2	18
20		1550	25.7		9.2	230	< 20						5.92	2.68	24.4	12.8
2308	8-23	1045	26.5		5.9	1,750	170						6.77	5.18		
20		1607	26.1		7.3	490	50						5.64	2.08	32.8	6
2408	8-24	1040	26.2		4.3	3,480	140						6.96	2.38	30.4	16.4
20		1705	25.5		3.3	1,720	60						5.86	2.96	42.4	18
2508	8-25	0745	24.9		5.9	230	50						7.19	2.64	21.2	14
														1.36	21.2	12.8

LA Laboratory Accident

1967
CHESAPEAKE TECHNICAL SUPPORT LABORATORY
WICOMICO RIVER SURVEY

Station 9: Island Point

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Secchi Disk Inches	Salinity Parts per thousand	Coliform MPN	Fecal Coliform MPN	NO_2+NO_3 mg/l NO_3-N	TKN mg/l N	Total P mg/l PO_4	Chloro-phyll a µg/l	Chlorides mg/l	DO mg/l Surface	BOD mg/l Surface	Susp. Solids mg/l	Volatile Solids mg/l
67071209	7-12	1230	27.5	28	12.5	< 20	< 20		.66	.157		6670	6.67	5.12	44.4	11.6
67080716	8-07	0955	26.6	37	9.2	220	50	ND	.752	.240	32.50		6.79	2.60	6.4	2.8
30		1523	27.6	43	10.1	230	< 20	ND	.555	.155	20.00		8.75	3.68	130.0	100.0
0809	8-08	0935	26.7	36	9.5	40	20	.042	.578	.202	24.17		7.13	3.82	89.6	36.0
28		1535	27.4	45	10.2	50	20		.594	.125	18.33		7.60	4.78	11.6	9.6
0909	8-09	1000	26.8	30	9.3	320	< 20	ND	.483	.127			6.97	3.50	40.0	27.6
23		1710	27.3	36	10	50	20		.506	.135	15.83		7.39	3.34	60.8	20.8
1009	8-10	1132	26.8	32	9.3	330	20	.092	.549	.146			6.38	3.36	33.6	3.2
23		1729	26.8	36	9.7	50	< 20		.709	.122	16.67		7.19	3.98	40.8	9.6
1109	8-11	0615	26.2	24	9.6	40	< 20				33.00		6.32	4.66		14.0
23		1150	26	28	8.2				.513	.188			3.39	3.46		
67082109	8-21	1030	26.2		8.7	70	20	ND	.659	.198	23.33	4880	6.65	2.90	6.0	1.2
25		1515	26.3		10.2	50	< 20	.398					6.72	3.06	30.4	10.8
2209	8-22	0930	25.9		9	50	20	.302	.559	.094	24.17	5260	6.55	2.18	23.6	18.0
21		1545	25.7		10.1	130	< 20	.305	.590	.096	23.33	6120	6.63	1.82	10.4	6.4
2309	8-23	1040	26.5		6.8	2,400	< 20		.665	.180		4830	6.21	3.14	13.2	2.0
21		1600	26.3		5.8	330	< 20		.866	.144		5940	6.77	4.14	22.4	12.4
2409	8-24	1030	25.9		6	1,720	50		.645	.172		4750	6.55	.78	36.4	12.0
21		1700	25.8		5.2				.911	.491		109	7.08	1.30	51.6	18.0
2509	8-25	0730	25		6.3	330	50		.446	.156		5370	6.86	1.74	24.4	11.6

ND Not detectable

1967
CHESAPEAKE TECHNICAL SUPPORT LABORATORY
WICOMICO RIVER SURVEY

Station 10: Wicomico Creek Ferry

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Secchi Disk Inches	Salinity Parts per thousand	Coliform MPN	Fecal Coliform MPN	NO_3+NO_3 mg/l NO_3-N	TKN mg/l N	Total P mg/l PO_4	Chloro-phyll a µg/l	Chlorides mg/l	DO mg/l Surface	BOD mg/l Surface	Susp. Solids mg/l	Volatile Solids mg/l
67071210	7-12	1400	27.5	25	6.2	490	90		1.03	.290		3130	7.76	4.58	22.4	10.8
67080717	8-07	1035	26.7	18	2.8	3,480	490						5.59			
31		1552	27.7	16	3.6	24,000	< 20						5.06	4.66	115.6	52.4
0810	8-08	1014	26.6	15	2.2	7,210	1,090					1510	4.57	4.04	48	6
29		1645	27.2		3.6	3,480	330						6.00	4.98		10.8
0910	8-09	1040	26.3	17	1.9	3,300	490						4.45	5.36	19.6	ND
24		1752	27.6	17	4.2	7,000	210						6.07	4.12	42	20.4
1010	8-10	1204	26.7	15	1.9	9,180	460						4.29	4.90	76.8	12
24		1820	26.7	17	3.2	3,480	490						5.33	6.68	57.6	16
1110	8-11	0655	26.1	15	2.5	3,480	120						3.90	4.14	23.6	9.6
24		1235	25.9	13	1.8	1,720	170						4.12	4.24		
67082110	8-21	1105	26.3		1.9	5,420	130						6.39	4.58	22.4	12.4
26		1345	26.3		3.7	1,410	< 20						5.91	2.42	44	14.8
2210	8-22	0956	25.9		2	3,480	170						4.65	4.46	50.8	21.6
22		1630	25.9		4	490	490						6.38	3.00	47.2	8.4
2310	8-23	1105	26.2		1.5	24,000	9,180						4.40	3.44	51.2	25.2
22		1631	26.5		.8	4,600	790						5.04	4.06	34.4	11.2
2410	8-24	1110	23.5			17,200	790						4.10	2.10	44	10.8
22		1730	26			9,180	< 20						4.87	2.86	35.2	14.8
2510	8-25	0800	23.5			9,180	490						3.94	1.76	41.2	21.6

ND Not detectable

1967

CHESAPEAKE TECHNICAL SUPPORT LABORATORY
WICOMICO RIVER SURVEY

Station 11: Sharps Creek

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Secchi Disk Inches	Salinity Parts per thousand	Coliform MPN	Fecal Coliform MPN	NO_3+NO_3 mg/l NO_3-N	TKN mg/l N	Total P mg/l PO_4	Chloro-phyll a µg/l	Chlorides mg/l	DO mg/l Surface	BOD mg/l Surface	Susp Solids mg/l	Volatile Solids mg/l
67071211	7-12	1405	26			34,800	< 20		4.23	.841		65.2	2.02	14.94	14.4	17.2
67080718	8-07	1005	20.5			160,900	1,300	.392	1.910	.984	10.83		2.79	3.20	18.4	11.2
32		1620	28.1			91,800	< 20	.349	1.411	.871	118.33		9.63	7.38	54.0	15.2
0811	8-08	1115	21.5			> 160,900	2,600	.460	1.923	1.142	12.50		2.66	4.92	19.6	2.0
30		1715	25.5			16,090	2,780		1.671	.807	59.16		6.74	9.66		21.2
0911	8-09	1140	21.5			54,200	54,200	.748	1.757	.986			3.44	4.22	27.6	27.2
25		1800	27.5			34,800	1,300	.294	.999	.704	62.50		8.17	7.14	51.6	29.2
1011	8-10	1230	21.5			> 160,900	91,800	.487	1.863	1.129			2.23	5.78	23.2	10.4
25		1855	25.5			54,200	2,780		1.783	.772	50.83		5.79	6.80	45.2	20.0
1111	8-11	0730	19.8			24,000	56		1.535	.813	21.75		3.05	4.86	16.0	12.4
25		1320	19.5			> 160,900	2,600		1.189	.959			2.89	9.88		
67082111	8-21	1055	19			160,900	1,300	.278	2.417	1.166	15.83	43.9	1.57	6.12	6.0	3.2
2211	8-22	1140	18			34,800	900	.160					2.51	4.70	16.4	9.6
2311	8-23	1205	17			> 160,900	740		1.419	.759		21.6	3.87	4.16	6.4	
2411	8-24	1420	19.1			> 160,900	160,900		1.450	.911		20.8	4.10	4.10	19.6	8.8

1967
CHESAPEAKE TECHNICAL SUPPORT LABORATORY
WICOMICO RIVER SURVEY

Station 12: Tonytank Creek

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Secchi Disk Inches	Salinity Parts per thousand	Coliform MPN	Fecal Coliform MPN	NO_2+NO_3 mg/l NO_3-N	TKN mg/l N	Total P mg/l PO_4	Chloro-phyll a µg/l	Chlorides mg/l	DO mg/l Surface	BOD mg/l Surface	Susp. Solids mg/l	Volatile Solids mg/l
67071212	7-12	1425	28.5			1,300	< 20		1.15	.119		9.90	9.30	7.90	4.8	8.8
67080719	8-07	1015	24			2,400	230	.251	.598	.207	32.50		6.92	3.70	3.6	1.2
33		1630	27.5			16,090	< 20	.180	.567	.181	34.17		9.97	4.24	70.8	48.8
0812	8-08	1125	25.5			1,300	50	.205	.528	.230	33.33		9.66	5.90	46.0	26.4
31		1725	25.9			940	50		.551	.131	25.83		10.45	5.60		9.6
0912	8-09	1150	25.4			700	80	.168	.557	.146			9.88	5.38	51.6	54.4
26		1810	27.8			2,100	200		.950	.134	33.33		11.27	5.70	18.4	6.4
1012	8-10	1249	24.8			1,700	260	.165	.685	.218			8.47	6.06	11.2	2.4
26		1900	25.5			460	50		.574	.130	17.50		10.34	8.06	26.4	21.6
1112	8-11	0735	24			110	20		.687	.145	48.75		7.19	5.06	10.0	12.4
26		1320	23.5			34,800	7,000		.282	.184			7.46	4.98		
67082112	8-21	1100	21.9			460	< 20	.332	1.343	.205	54.16	10.7	11.40	9.14	7.2	8.4
2212	8-22	1150	21			210	< 20	.305	1.017	.183	95.83	10.9	11.08	6.88	18.4	15.2
2312	8-23	1215	18			10,900	330		.684	.219		7.4	7.13	4.84	8.8	8.8
2412	8-24	1430	20.5			10,900	1,400		.843	.180		5.4	5.87	3.36	18.8	10.4

1967

CHESAPEAKE TECHNICAL SUPPORT LABORATORY
WICOMICO RIVER SURVEY

Station 13: Beaverdam Creek

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Secchi Disk Inches	Salinity Parts per thousand	Coliform MPN	Fecal Coliform MPN	NO_2+NO_3 mg/l NO_3-N	TKN mg/l N	Total P mg/l PO_4	Chlorophyll a µg/l	Chlorides mg/l	DO mg/l Surface	BOD mg/l Surface	Susp. Solids mg/l	Volatile Solids mg/l
67071213	7-12	1445	28			340	< 20		.90	.068		7.40	7.95	6.40	9.2	6.8
67080720	8-07	1030	23.5			7,000	330	LA	.585	.106	8.33					
34		1650	26			34,800	< 20	.461	.665	.310	16.67		4.00	1.48	ND	.4
0813	8-08	1135	24.5			1.300	50	.308	.748	.101	6.67		4.50	2.58	158.4	129.6
32		1735	24.8			1.720	170		.656	.073	9.17		4.76	3.46	56.4	41.2
0913	8-09	1205	28.6			3.480	20	.256	.897	.076			4.85	3.56		9.6
27		1825	29.5			3.480	< 20		.993	.194	15.00		4.83	4.14	2.8	.8
1013	8-10	1255	24.9			5,420	170	.146	.623	.069			4.85	4.96	8.4	8.8
27		1915	25.5			400	20		.728	.057	9.17		5.23	5.26	15.2	4.4
1113	8-11	0750	23.1			460	50		.662	.069	8.25		5.84	3.60	12.4	9.6
27		1345	23.5			230	230		.645	.077			6.18	3.82	16.4	14.0
													5.83	3.66		

LA Laboratory Accident

ND Not Detectable

1967
CHESAPEAKE TECHNICAL SUPPORT LABORATORY
WICOMICO RIVER SURVEY

Station 14: Leonard Pond Run

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Secchi Disk Inches	Salinity Parts per thousand	Coliform MPN	Fecal Coliform MPN	NO_2+NO_3 mg/l NO_3-N	TKN mg/l N	Total P mg/l PO_4	Chlorophyll a µg/l	Chlorides mg/l	DO mg/l Surface	BOD mg/l Surface	Susp. Solids mg/l	Volatile Solids mg/l
67071214	7-12	1505	22			3,480	20		.83	.505		7.40	9.52	2.50	2.8	3.2
67080721	8-07	1050	21.5			22,100	2,400	.303	.807	.252	8.33		4.42	1.58	ND	ND
35		1710	22.3			9,180	< 20	.303	.635	.088	15.83		4.24	3.62	195.6	180.0
0814	8-08	1155	21.9			7,900	130	.438	.710	.252	7.50		4.48	4.18	8.4	
33		1755	21.9			16,090	490		.637	.235	6.67		4.39	1.98		10.8
0914	8-09	1220	21.8			5,420	330	.430	.842	.202			4.35	5.62	10.4	6.8
28		1845	21.8			9,400	80		1.018		4.17		4.29	4.38	8.0	9.6
1014	8-10	1310	24.5			54,200	10,900	.519	.450	.234			5.04	4.24	2.8	ND
28		1930	18.2			13,000	490		.703	.216	4.17		5.50	5.20	16.8	12.8
1114	8-11	0800	17.5			54,200	430		.668	.248	6.00		5.71	4.26	8.4	11.6
28		1400	17.8			34,800	7,000		.413	.032			6.75	3.70		

ND Not Detectable

1967
CHESAPEAKE TECHNICAL SUPPORT LABORATORY
POCOMOKE RIVER SURVEY

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Secchi Disk Inches	Salinity °/oo	Coliform MPN	Fecal Coliform MPN	NO_2+NO_3 mg/l NO_3-N	TKN mg/l N	Total P mg/l PO_4	Chlorides mg/l	DO mg/l	BOD mg/l	Total Solids mg/l	Susp. Solids mg/l	Volatile Solids mg/l	SO_4 mg/l	Total Alk. mg/l	Total Acid. mg/l
							Station 1 - Porters Crossing												
67071407	7-14	1625	22.5	12		1,090	170	.600	.243	.243	9.1	5.16	2.82		ND	ND		20.48	9.00
2436	7-24	1400						.708	.928	.348		5.68	.92	149	26.4	16.0	15.3	25.86	3.76
2510	7-25	1300	22			5,420	230	.826	.748	.353		3.02	2.56	188	59.2	31.2	14.0	20.81	8.92
2601	7-26	1616	22.5			1,300	130	.714	1.012	.295		5.02	2.68	150	28.4	8.0	12.0	22.54	7.52
2709	7-27	1500	24			4,600	170	.996	.562	.259		5.13	3.76	88.4	20.0	2.4	8.0	18.14	12.21
2801	7-28	1120	24.5			2,400	80	.708	.931	.292		6.13	6.74	67.6	17.6	12.4	15.0	18.52	7.70
080247	8-01	1335	23	12		1,090	170	.637					2.58	45.6					
							Station 2 - Snow Hill												
67060915	6-09												4.10						
0915													4.72						
071408	7-14	1600	25.5	18		> 16,090	3,480	.360	.231	.485	11.2	4.70	5.50		2.4	ND		21.16	9.23
1912	7-18	1730	24	16		54,200	4,600	.251	.940	.586		3.66	3.96		11.6	.4			
2437	7-24	1330	27.6			1,720	230	.248	2.139	1.041		2.56	.80	201	87.2	32.0			
2511	7-25	1245	27.8	24	0	5,420	3,480	.256	1.379	.604		2.12	4.00	118	31.2	30.8			
2602	7-26	1610	28.5	23		1,300	790	.252	1.302	.616		3.84	4.84	122	18.8	4.4			
2710	7-27	1348	28.5	21		12,000	700	.546	1.270	.563		2.39	7.90	38.4	14.4	6.4			
2724	7-27	1940	27	18		550	1,400		1.276	.639		2.12	4.30	34.4	22.0	ND			
2802	7-28	1055	27.5			4,900	50	.276	1.173	.602		2.75	3.80	33.6	12.0	12.0			
080248	8-01		28.9	23	0	9,180	2,400	.368	1.158	.724			3.90	45.6					
							Station 3 - Milburn Landing												
67071409	7-14	1515	25.5	23		9,180	50	.298	.370	.370	10.7	4.09	3.00		11.6	4.0		17.75	10.13
1913	7-18	1700	24	19		7,000	330	.194	.971	.406		3.80	3.38		18.4	3.6			
2438	7-24	1250	27	26	.1	490	20	.204	1.682	.669		4.36	.78		16.4	17.2	12.2	23.15	8.06
2512	7-25	1226	27.4	26	0	2,600	50	.216	1.224	.395		4.47	3.12		36.8	24.4	13.0	23.15	8.96
2603	7-26	1545	27.5	24.5		1,300	< 20	.286	1.830	.447		4.62	7.38		11.6	10.4	11.5	24.87	4.30
2711	7-27	1320	27	24		36	50	.560	.816	.363		4.54	4.70		18.8	11.6	8.0	23.65	7.59
2725	7-27	1914	27	18		800	50		.720	.349		6.23	2.86		16.8	8.8		18.43	7.70
2803	7-28	1010	27.5			700	< 20	.208	.683	.378		5.57	2.20		17.2	14.4	12.5	18.91	6.60
080249	8-01	1235	28.5	25	0	790	50	.194					3.72						

ND Not detectable

1967

CHESAPEAKE TECHNICAL SUPPORT LABORATORY

POCOMOKE RIVER SURVEY

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Secchi Disk Inches	Salinity °/oo	Coliform MPN	Fecal Coliform MPN	NO_2+NO_3 mg/l NO_3-N	TKN mg/l N	Total P mg/l PO_4	Chlorides mg/l	DO mg/l	BOD mg/l	Total Solids mg/l	Susp. Solids mg/l	Volatile Solids mg/l	SO_4 mg/l	Total Alk. mg/l	Total Acid. mg/l
							Station 4 - Pocomoke City												
67060916	6-09												3.73						
0916													4.46						
071914	7-18	1640	24	13		24,000	3,480	.323		.578		2.33	2.72		38.4	5.2			
2439	7-24	1235	27.2	24	.1	7,000	130	.340	1.315	.579		3.23	3.42	174	20.0	14.4			
2513	7-25	1205	27.7	18	0	54,200	9,180	.352	1.418	.492		2.92	2.94	158	46.4	5.2			
2604	7-26	1435	27.5	24		190	83	.244	.954	.426		4.52	3.40	250	13.6	7.6			
2712	7-27	1250	27.5	21		4,900	80	.510	.683	.448		4.21	4.42	59.6	27.6	5.2			
2726	7-27	1848	27	16		13,000	3,480		.750	.492		3.39	2.48	88.8	23.2	12.0			
2804	7-28	0905	27	24		2,780	30	.324	.695	.381		3.38	1.98	116	18.8	7.6			
080250	8-01	1155	28.7	24	0	34,800	20	.380	.743	.427			3.04	84.4					
							Station 5 - Puncheon Landing												
67071915	7-18	1630	24.5	20		24,000	790					2.31	2.42		22.4	2.4			
2440	7-24	1215	27.4	18		14,100	360					3.03	2.40		82.4	28.0			
2514	7-25	1155	27.8	16	0	3,480	440					4.15	2.38		70.8	29.6			
2605	7-26	1420	27	23		54,200	4,600					4.00	3.32		17.2	4.8			
2713	7-27	1238	27	19		2,300	20					3.17	3.08		48.4	11.2			
2727	7-27	1835	27.5	16		1,090	220					4.44	2.70		28.8	8.4			
2805	7-28	0852	27.5	18		3,480	80					4.13	2.14		28.4	13.6			
080251	8-01	1140	28.3	20	.1	2,400	490						3.00	172					
							Station 6 - Rehobeth												
67060917	6-09												2.24						
0917													3.98						
071916	7-18	1610	24.5	17		5,420	230	.321	LA			3.49	2.68		34.8	5.6			
2441	7-24	1200	27.6	18	1.2	2,400	80	.520	.670	.274		4.53	2.12	1,686	32.0	16.8	16.0	38.18	6.77
2515	7-25	1140	27.6	20	2.8	3,480	330	.194	1.057	.293		3.69	2.12	3,301	60.0	29.6	18.0	46.80	8.60
2606	7-26	1404	29	18.5		2,400	40	.248	.844	.291		4.74	2.22	826	20.4	12.0	12.8	35.96	9.89
2714	7-27	1220	28	20		3,300	20	.462	.653	.163		4.76	3.86	1,010	26.8	4.4	13.0	41.99	6.60
2728	7-27	1819	27	12		1,090	130		1.379	.244		4.85	1.84	1,600	36.0	7.6		38.80	9.90
2806	7-28	0835	27	18		7,900	70	.176	.635	.229		4.78	2.46	1,538	44.4	15.6	27.0	38.80	9.02
080252	8-01	1120	28.5	25	2.7	2,400	490	.165					2.30	1,268					

LA Laboratory accident

1967
CHESAPEAKE TECHNICAL SUPPORT LABORATORY
POCOMOKE RIVER SURVEY

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Secchi Disk Inches	Salinity °/oo	Coliform MPN	Fecal Coliform MPN	NO_2+NO_3 mg/l NO_3-N	TKN mg/l N	Total P mg/l PO_4	Chlorides mg/l	DO mg/l	BOD mg/l	Total Solids mg/l	Susp. Solids mg/l	Volatile Solids mg/l	SO_4 mg/l	Total Alk. mg/l	Total Acid. mg/l
							Station 7 - Cedar Hall Wharf												
67071917	7-18	1545	24	18		7,000	230					4.03	2.30		46.4	10.8			
2442	7-24	1120	27.3	16	3.6	9,180	80					4.04	1.82		43.2	17.2			
2516	7-25	1125	27.7	18	5.2	3,480	170					4.40	3.16		69.6	30.8			
2607	7-26	1350	27.5	17		1,300	110					4.29	3.90		41.6	14.0			
2715	7-27	1210	27	14		4,900	80					4.67	4.16		51.2	ND			
2729	7-27	1807	28	14		490	230					7.24	2.00		58.8	14.4			
2807	7-28	0822	27.5	25		2,400	40					5.41	5.10		29.2	14.8			
080253	8-01	1105	28.2	22	4.8	2,400	790						3.24	2,130					
							Station 8 - Shelltown												
67060918	6-09												3.74						
0918													5.78						
071918	7-18	1510	24	25		1,090	80	.086	LA			7.05	4.52		51.6	15.6			
2443	7-24	1000	27	16		790	50	.120	.767	.2		5.42	4.78			QNS	80.0	59.12	2.90
2517	7-25	1055	27.7	24	8.8	310	310	.034	1.534	.1		5.89	5.88		36.4	11.6	81.9	70.07	6.45
2527	7-25	1530	28.5	14		940	170					6.60	3.48		44.0	15.6	78.0	73.70	4.83
2608	7-26	1320	27.5	22		1,410	230	.170	.818	.264		5.29	4.06		38.4	9.2	51.8	62.81	7.52
2716	7-27	1145	28	23		330	20	.060				6.40	6.66		42.0	9.2	61.8	51.61	7.81
2730	7-27	1752	29	22		170	40			.355		7.69	6.04		48.8	19.2		58.01	4.51
2808	7-28	0800	27.5	30		1,300	< 20	.046	.683	.278		6.67	4.06		35.6	19.2	89.2	57.42	10.67
080254	8-01	1055	28.5	24	8.6	1,300	490	.120					5.12	3,609					
							Station 9 - East of Fair Island												
67071919	7-18	1455	24.5	24		230	170					7.25	4.04		50.0	14.0			
2444	7-24	0907	27	13		330	330					6.64	6.76		81.6	20.8			
2518	7-25	1010	27	16		330	170					6.08	4.64		64.4	16.0			
2528	7-25	1440	28	18		< 20	< 20					7.44	4.42		56.0	17.6			
2609	7-26	1245	27.5	20		490	20					5.99	3.36		41.6	12.0			
2717	7-27	1130	28	21		500	< 20					6.05	3.88		47.6	52.0			
2809	7-28	0740	27	25		270	< 20					6.36	4.54		39.6	9.2			
080255	8-01	1038	28.1	25	11.1	50	20						3.52	4,733					

LA Laboratory accident

QNS Quantity not sufficient

ND Not detectable

1967

CHESAPEAKE TECHNICAL SUPPORT LABORATORY

POCOMOKE RIVER SURVEY

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Secchi Disk Inches	Salinity °/oc	Coliform MPN	Fecal Coliform MPN	NO_2+NO_3 mg/l NO_3-N	TKN mg/l N	Total P mg/l PO_4	Chlorides mg/l	DO mg/l	BOD mg/l	Total Solids mg/l	Susp. Solids mg/l	Volatile Solids mg/l	SO_4 mg/l	Total Alk. mg/l	Total Acid. mg/l
							Station 10 - Opposite Persimmon Point												
67071920	7-18	1435	25	28		50	< 20												
2445	7-24	0915	27	18		790	220					7.90							
2519	7-25	1020	28	17		20	20												
2529	7-25	1450	28	14		< 20	< 20												
2610	7-26	1203	28.5	24		490	110												
2810	7-28	0745	27	26		1,410	< 20												
080256	8-01	1045	27.6	33	11.8	< 20	< 20												
							Station 11 - Fair Island Channel												
67071921	7-18	1315	24	20		230	130												
2446	7-24	0900	27	19		790	170					7.25	4.18		60.0	16.8			
2520	7-25	1005	27	11		790	220					6.18	6.02		67.6	26.4			
2530	7-25	1430	29	12		170	80					6.29	4.20		72.0	20.8			
2611	7-26	1230	28	21		170	40					6.83	4.54		77.6	26.0			
2719	7-27	1117	28.5	21		330	< 20					6.42	5.28		44.8	11.6			
2811	7-28	0730	27	27		3,480	< 20					6.68	5.60		26.8	1.2			
080257	8-01	1030	27.9	25	11.5	50	20					7.01	2.92		36.4	ND			
													2.40	4,966					
							Station 12 - Robin Hood Bay												
67071922	7-18	1412	25	24		< 20	< 20												
2447	7-24	0830	26.5	18		< 20	< 20					8.63							
2521	7-25	0920	27	17		< 20	< 20												
2531	7-25	1345	29.5	26		< 20	< 20												
2612	7-26	1150	23.8	14		< 20	< 20												
2720	7-27	1045	28	24		< 20	20												
2812	7-28	0645	27	34		3,480	< 20												
080258	8-01	0945	27	30	15.3	< 20	< 20												
							Station 13 - Rumbly Point												
67071923	7-18	1400	25	32		< 20	< 20												
2448	7-24	0820	26.5	24		20	50					8.53							
2522	7-25	0930	26.5	6		< 20	< 20												
2532	7-25	1355	28	12		40	< 20												
2613	7-26	1200	22	11		20	< 20												
2721	7-27	1055	27	22		3,480	< 20												
2813	7-28	0657	27	41		490	< 20												
080259	8-01	1005	27.6	26	15.4	< 20	< 20												

ND Not detectable

1967
CHESAPEAKE TECHNICAL SUPPORT LABORATORY
POCOMOKE RIVER SURVEY

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Secchi Disk Inches	Salinity °/oo	Coliform MPN	Fecal Coliform MPN	NO_2+NO_3 mg/l NO_3-N	TKN mg/l N	Total P mg/l PO_4	Chlorides mg/l	DO mg/l	BOD mg/l	Total Solids mg/l	Susp. Solids mg/l	Volatile Solids mg/l	SO_4 mg/l	Total Alk. mg/l	Total Acid. mg/l
							Station 14 - Marumsco Creek												
67071924	7-18	1345	25	30		50	50					8.20							
2449	7-24	0835	26.5	26		40	< 20												
2523	7-25	0943	27.5	6		80	20												
2533	7-25	1405	29	18		< 20	< 20												
2614	7-26	1215	27	16		20	< 20												
2722	7-27	1100	27.5	26		230	< 20												
2814	7-28	0705	27	37		400	< 20												
080260	8-01	1015	27.5	28	14.9	< 20	< 20												
							Station 15 - Bullbegger Creek												
67072450	7-24	0945	26.5	18		220	110					5.73	3.78		52.0	26.8			
2534	7-25	1510	28.5	12		790	130												
2815	7-28	0754	27	30		260	< 20					6.46	3.26		26.4	8.8			
							Station 16 - Pitts Creek												
67071925	7-18	1530	24	18		91,800	460					4.27	2.42		69.6	14.4			
2451	7-24	1050	27.5	24	5.4	3,480	130					4.08	3.12		53.6	22.8			
2525	7-25	1113	27.8	23	7	1,400	230					5.01	3.18		69.6	17.6			
2615	7-26	1330	27.5	23		1,700	130					5.50	8.04		36.0	8.0			
2723	7-27	1155	28.5	23		1,700	40					5.23	6.54		38.4	2.4			
2731	7-27	1758	27.5	16		270	20					7.47	2.56		63.2	16.8			
2816	7-28	0810	27	30		230	< 20					5.68	3.98		25.6	10.8			
							Station 17 - Holdens Creek												
67072452	7-24	0927	27	24		40	< 20												
2535	7-25	1500	29	16		790	20												
2817	7-28					700	20												

1967

CHESAPEAKE TECHNICAL SUPPORT LABORATORY
NANTICOKE RIVER SURVEY

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Secchi Disk Inches	Field pH	Laboratory pH	Coliform MPN	Fecal Coliform MPN	TKN mg/l N	Total P mg/l PO_4	Chlorides mg/l	DO mg/l	BOD mg/l
				Station 1 - U.S. 13 Bridge upstream of Seaford, Delaware									
67071301	7-13	1240	26	20	6.8	6.10	1,200	230	1.03	.243	6	6.36	5.80
07		1755	25	41			4,900	60	.272	.277	5.4	6.24	3.60
1401	7-14	1215	25.5	40			9,180	1,720		.335	5.6	5.87	4.58
				Station 2 - Woodland Ferry, Delaware									
67071302	7-13	1215	27	18	6.6	6.60	1,700	90	1.02	.209	9.1	8.75	6.58
08		1735	27.5	30			2,100	80	.870	.245	7.2	7.13	4.92
1402	7-14	1200	25.5	24			540	40		.210	11.3	6.26	5.32
				Station 3 - Sharptown, Maryland									
67071303	7-13	1120	26.5	26	6.6	6.78	1,410	230	.444	.303	198	7.22	5.00
09		1645	26.5	20			400	20	.621	.211	29.8	7.71	3.92
1403	7-14	1120	26	14			24,000	310		.201	264	5.92	2.74
				Station 4 - Vienna, Maryland									
67071304	7-13	1025	26.5	14	7.1	6.80	3,300	490	1.645	.140	1,050	5.45	9.34
10		1555	26.5	8			9,400	170	.789	.252	600	5.28	3.04
1404	7-14	1035	26	17			9,180	80		.138	1,310	5.09	3.00
				Station 5 - Broad Creek - Bethel, Delaware									
67071305	7-13	1200	26	10	6.8	6.42	2,300	230	1.189	.268	22.9	6.90	7.32
11		1715	25.5	30			22,100	170	.940	.352	6.6	4.06	6.18
1405	7-14	1145	25	16			34,800	330		.321	7.3	5.73	5.38
				Station 6 - Marshy Hope Creek - Brookview, Maryland									
67071306	7-13	1055	26	22	6.9	6.40	1,090	110	.633	.152	36.1	5.77	3.80
12		1625	26	28			7,000	330	.795	.331	17.1	5.23	3.54
1406	7-14	1055	25.5	16			16,090	80		.325	35.7	5.64	4.24

Salinity not taken

1967
CHESAPEAKE TECHNICAL SUPPORT LABORATORY
MARSHALL CREEK SURVEY

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	Coliform MPN	Fecal Coliform MPN	Chlorides mg/l	DO mg/l	BOD mg/l	Total Solids mg/l	Susp. Solids mg/l	Volatile Solids mg/l
					Station 1						
67090101	8-31	1650	22				4.47	4.24		8.0	2.8
					Station 1 E						
67090102	8-31	1635	23					27.64		58.6	320.0
					Station 2						
67072506	7-25	0910	25				5.16	13.92	NSL	89.0	58.0
2705	7-27	1200	28.5				5.13	7.92	4,068	24.0	7.2
082113	8-21	1500	23.5	160,900	34,800		.81	9.26			
090103	8-31	1830	21				2.22	18.24		18.8	14.4
					Station 2 A						
67072507	7-25	0925	27				4.39	8.38	NSL	52.0	36.0
2706	7-27	1212	32				12.49	14.46	14,061	75.6	37.6
082114	8-21	1515	25.5	54,200	330	4,740	8.94	16.64			
090105	8-31	1900					3.29	9.88		28.0	13.0
					Station 2 B						
67090104	8-31	1850	25				4.77	6.52		14.0	8.8
					Station 3						
67072508	7-25	0935	27				3.17	7.60	NSL	50.0	31.2
2707	7-27	1223	30.5				11.21	15.40	13,926	72.4	34.0
082115	8-21	1520	24.5	24,000	130		11.37	17.00			
					Station 4						
67072454	7-24	0845	25.5				3.23	7.26	NSL		
2509	7-25	0940	26				3.33	5.76	NSL	70.4	34.4
2708	7-27	1245	29.5				6.74	8.56	7,850	66.4	10.0
082116	8-21	1540	23	700	70		6.36	7.70			
090106	8-31	1950	26				7.66	5.76		59.0	22.0

NSL No sample left

Salinity and Secchi Disk not taken

1967
CHESAPEAKE TECHNICAL SUPPORT LABORATORY
BUNTING BRANCH SURVEY

Sample Number	Date Sample Taken	Time Sample Taken	Water Temp °C	DO mg/l	BOD mg/l	Total Solids mg/l	Susp. Solids mg/l	Volatile Solids mg/l
				Station 1				
67072455	7-24		26	21.45	15.42	NSL		
2501	7-25	1100	27.5	23.98	76.80	NSL	101.2	89.9
2701	7-27	1400	27	0	44.20	240	70.0	10.0
				Station 3				
67072457	7-24	1030		0	59.10	NSL		
2502	7-25	1125		0		NSL	9,073.0	2,669.0
2702	7-27	1412		0	62.80	NSL	680.0	192.0
				Station 4				
67072458	7-24	1000		1.21	59.00	NSL		
2503	7-25	1145		.31	72.60	NSL	143.4	91.8
				Station 5				
67072459	7-24	1015	20.5	5.17	2.96	NSL		
2504	7-25	1135	22.5	4.94	4.20	NSL	81.2	34.4
2703	7-27	1423		.35	13.12	390	186.0	74.0
				Station 6				
67072460	7-24			3.01	35.10	NSL		
2505	7-25	1300	22	1.54	46.20	NSL	45.6	30.8
2704	7-27	1356	23.5	.70	14.22	NSL	176.0	100.0

NSL No sample left

Salinity and Secchi Disk not taken

1967
CHESAPEAKE TECHNICAL SUPPORT LABORATORY
CHINCOTEAGUE BAY SURVEY

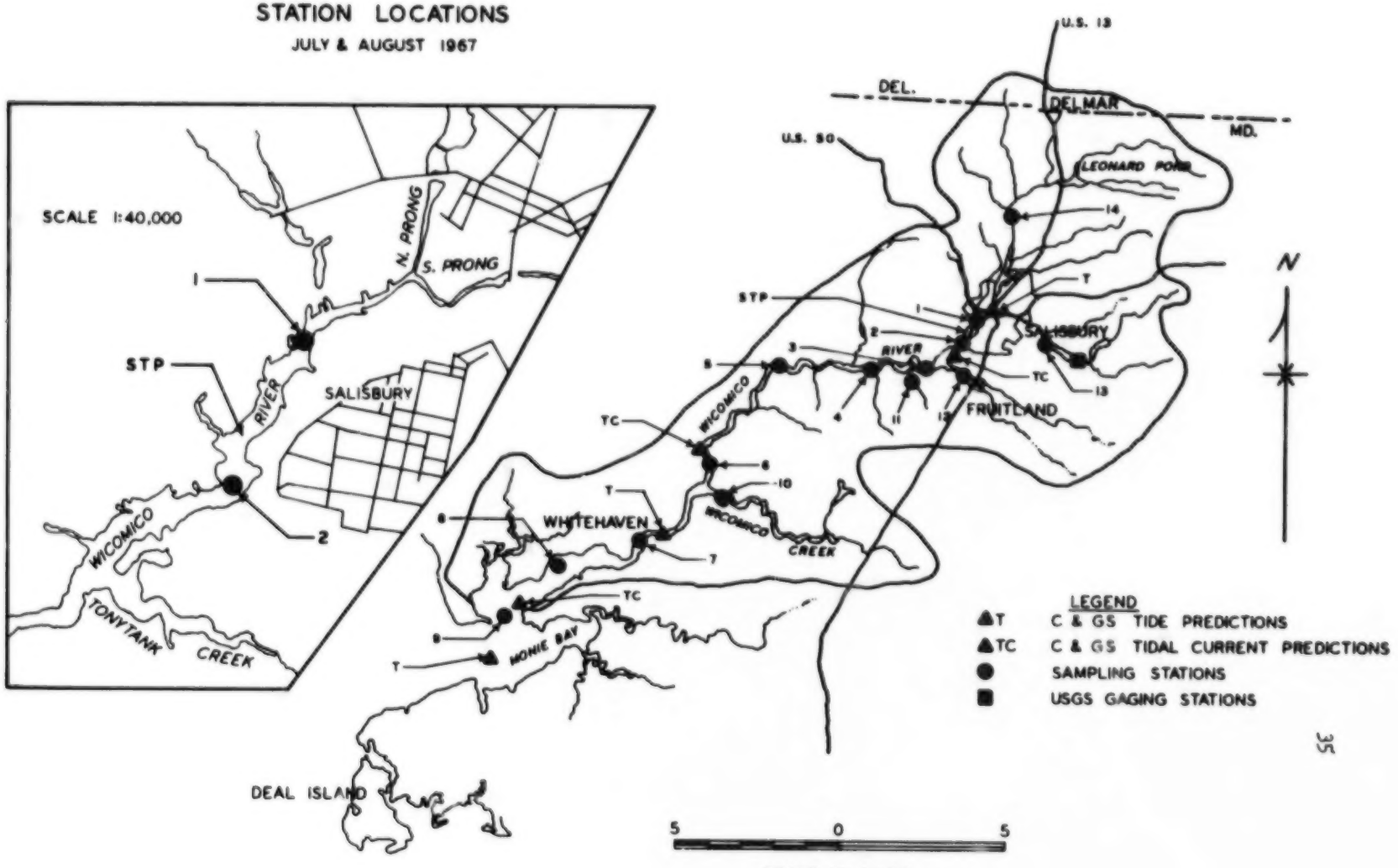
Sample Number	Date Sample Taken	Time Sample Taken	Water Temp. °C	Salinity °/oo	Field pH	DO mg/l	Susp. Solids mg/l
			Station 1 - Outside Tide Gate #1				
67080815	7-14	1200			7.4	3.30	16.0
			Station 2 - Inside Tide Gate				
67080816	7-14	1205	26		7.4	3.63	27.2
			Station 3 - First Raft				
67080817	7-14	1210	26	28.7	7.6	4.95	67.2
			Station 4 - Second Raft				
67080818	7-14	1215			7.75	5.19	42.2
			Station 5 - Third Raft				
67080819	7-14	1220			7.75	6.09	36.8

Secchi Disk not taken

WICOMICO RIVER BASIN

STATION LOCATIONS

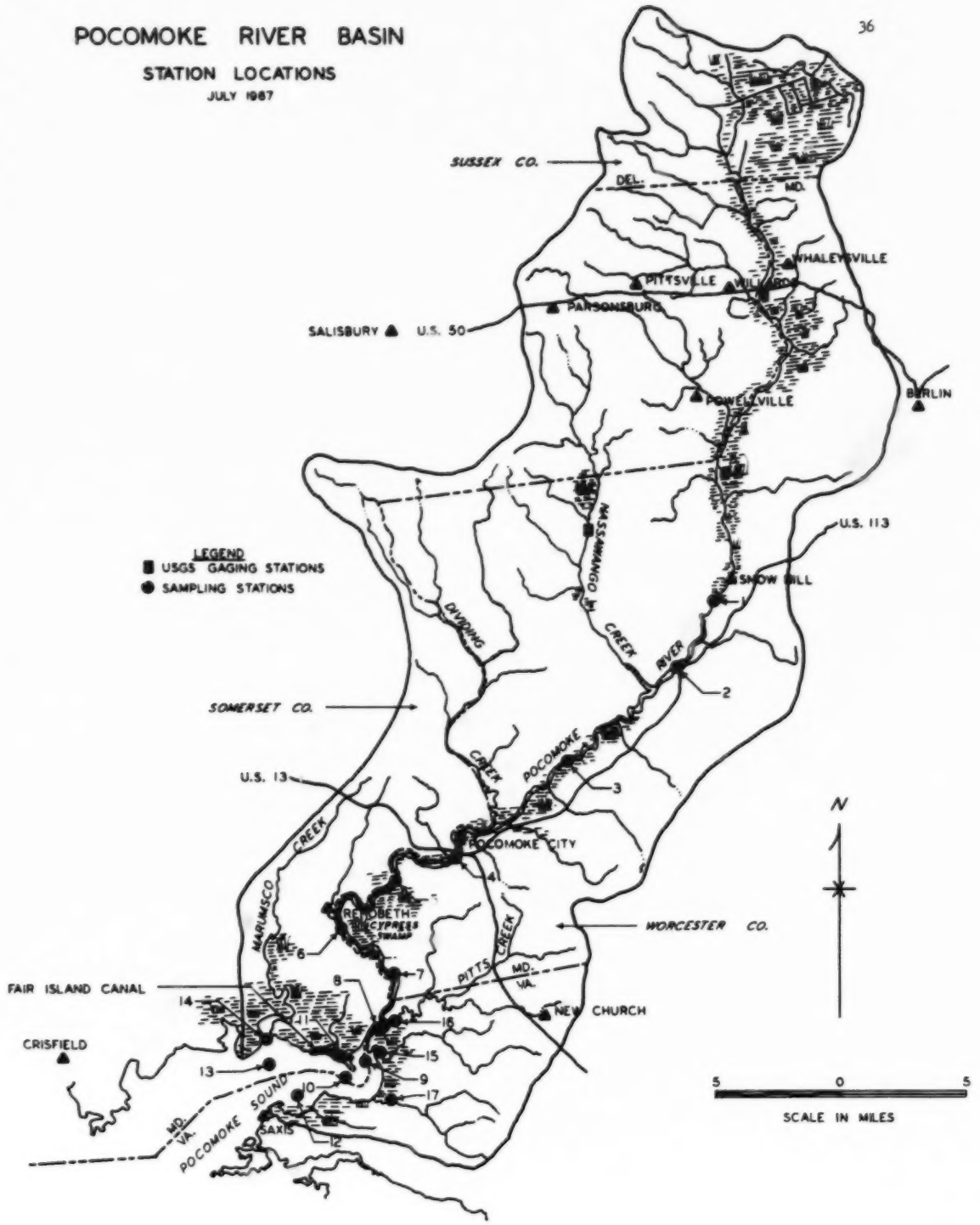
JULY & AUGUST 1967

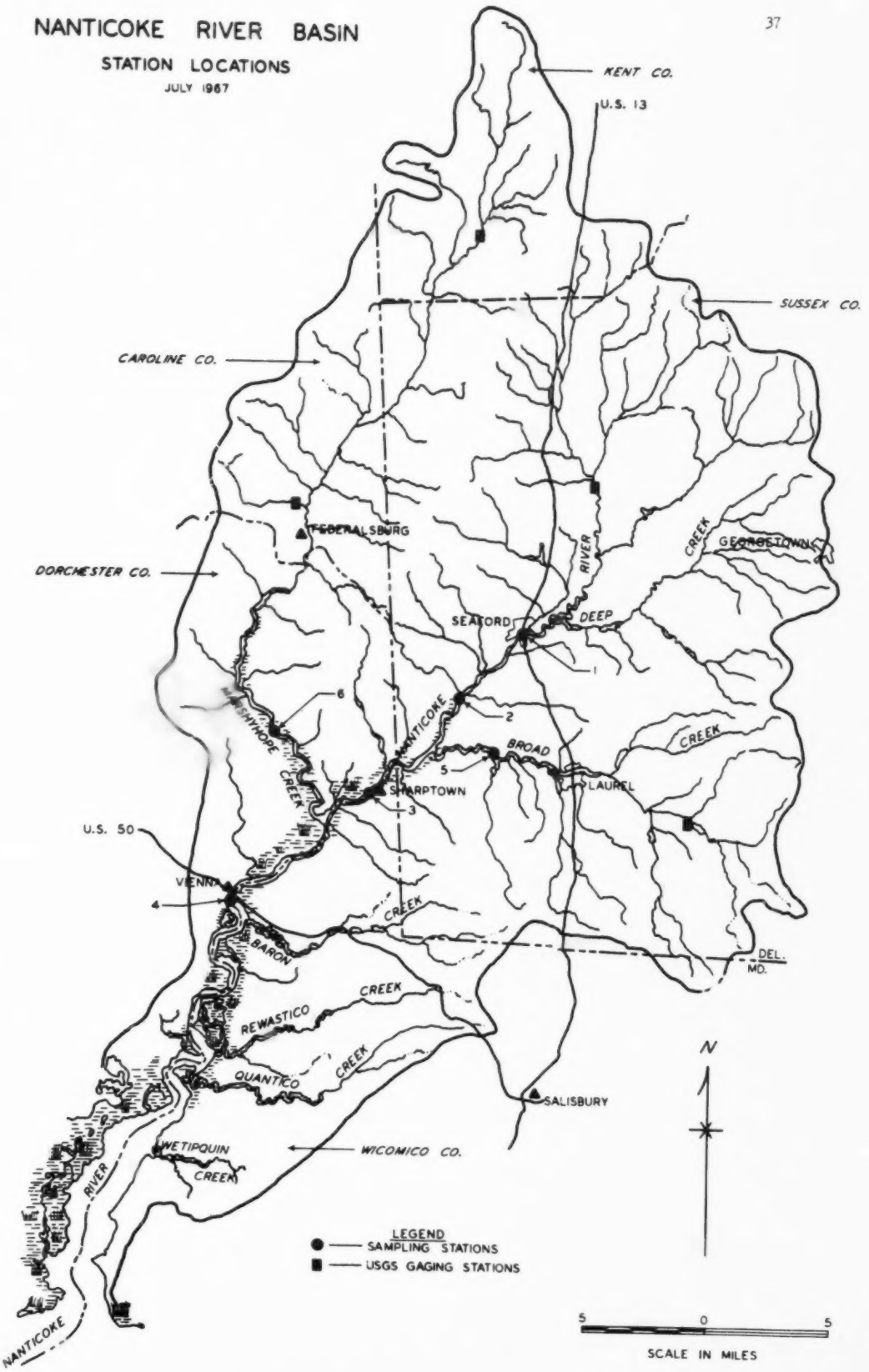


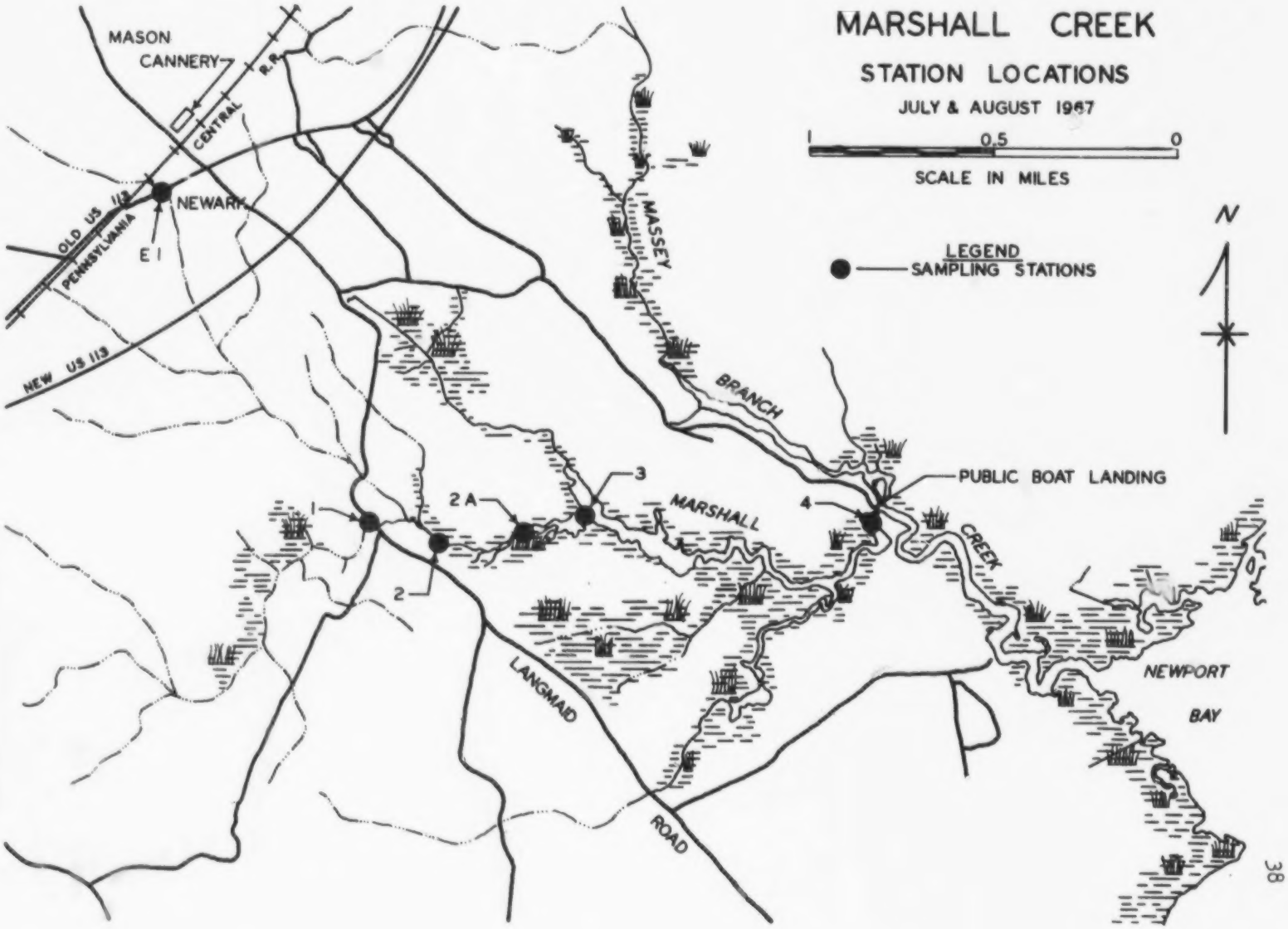
POCOMOKE RIVER BASIN

STATION LOCATIONS

JULY 1987




NANTICOKE RIVER BASIN
STATION LOCATIONS
JULY 1967
KENT CO.
U.S. 13
SUSSEX CO.
CAROLINE CO.
FEDERALSBURG
DORCHESTER CO.
GEORGETOWN
CREEK
RIVER
DEEP
SEAFORD
1
6
2
NANTICOKE
BROAD
CREEK
5
MARSHYHOPE
CREEK
SHARPTOWN
LAUREL
3
U.S. 50
VIENNA
4
CREEK
BARON
DEL.
MD.
CREEK
REWASTICO
CREEK
QUANTICO
SALISBURY
WETIPQUIN
CREEK
WICOMICO CO.
RIVER
NANTICOKE
N
LEGEND
SAMPLING STATIONS
USGS GAGING STATIONS
5 0 5
SCALE IN MILES



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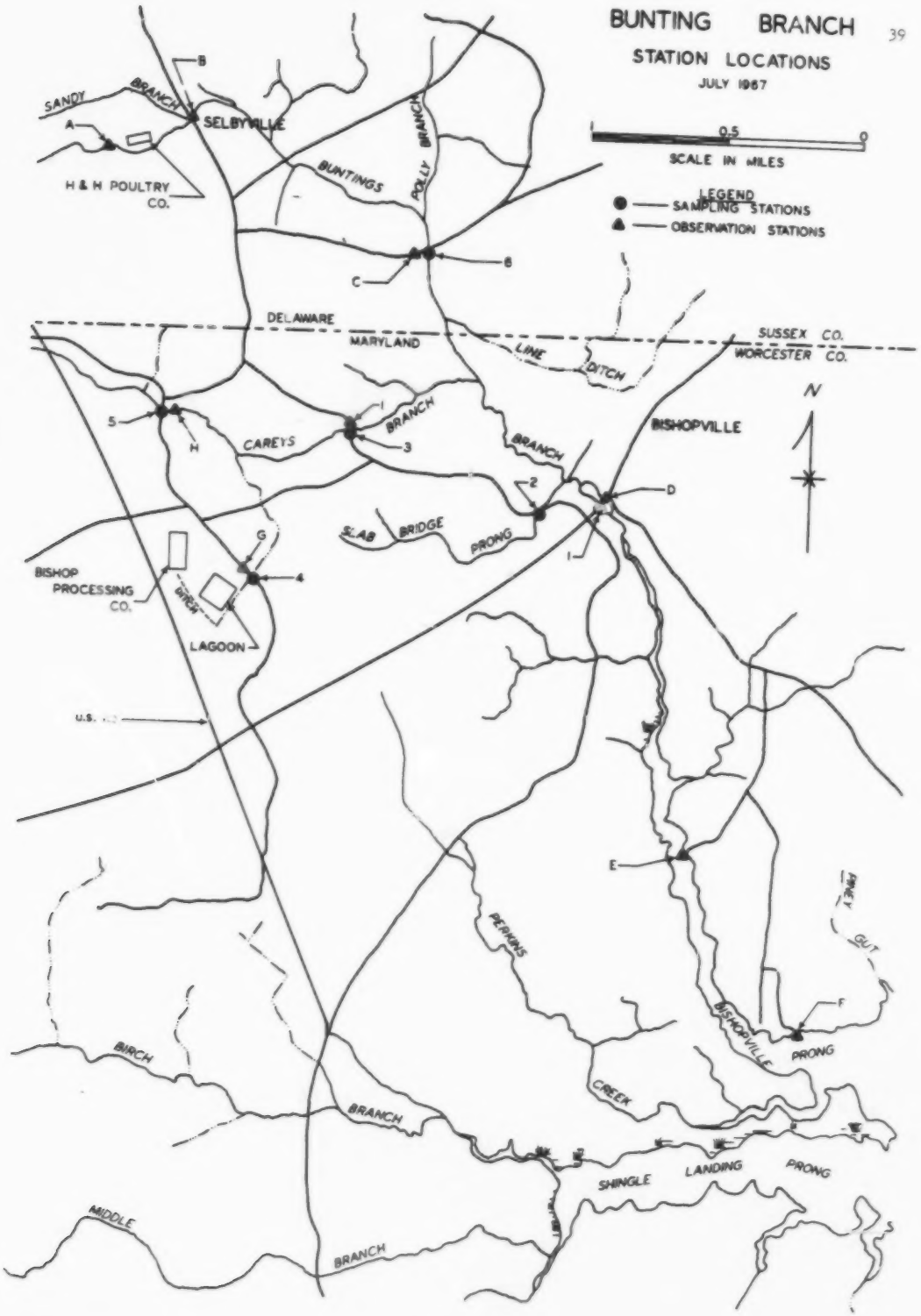
BUNTING BRANCH
STATION LOCATIONS
JULY 1967
0.5
0
SCALE IN MILES
LEGEND
SAMPLING STATIONS
OBSERVATION STATIONS
SANDY BRANCH
SELBYVILLE
BUNTINGS
POLLY BRANCH
H & H POULTRY CO.
DELAWARE
MARYLAND
LINE DITCH
SUSSEX CO.
WORCESTER CO.
BISHOPVILLE
CAREYS BRANCH
BRANCH
SLAB BRANCH
PRONG
BISHOP PROCESSING CO.
BIRCH
LAGOON
U.S.
PERKINS
GUT
BISHOPVILLE PRONG
CREEK
BIRCH BRANCH
SHINGLE LANDING PRONG
MIDDLE BRANCH
N